CLAIMS

1. A dispersion of tin-doped indium oxide fine particles, the dispersion comprising tin-doped indium oxide fine particles, a plasticizer for an interlayer film, an organic solvent containing alcohols as a main component, and a dispersion stabilizer,

wherein under measuring conditions of a concentration of the tin-doped indium oxide fine particles of 0.7% by weight and an optical path length of a glass cell of 1 mm,

a visible light transmittance is 80% or more,

a solar radiation transmittance at a wavelength within a range from 300 nm to 2100 nm is 3/4 or less of the visible light transmittance,

a haze value is 1.0% or less, and

a reflection yellow index is -20 or more.

2. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein instead of the reflection yellow index being -20 or more, or with the reflection yellow index being -20 or more,

under measuring conditions of the optical path length of the glass cell of 1 mm, a reflection value at 0 degrees among reflected light distribution at an incidence angle of 45 degrees measured by a goniophotometer is 30 or less.

3. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein the plasticizer for an interlayer film is at least one selected from the group consisting of dihexyl adipate, triethylene glycol di-2-ethylhexanoate, tetraethylene glycol di-2-ethylhexanoate, triethylene glycol di-2-ethyl butyrate, tetraethylene glycol di-2-ethyl butyrate, tetraethylene glycol di-heptanoate, and triethylene glycol di-heptanoate.

4. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein the alcohols comprise at least one selected from the group consisting of methanol, ethanol, propanol, isopropanol, n-butanol, isobutanol, sec-butanol, tert-butanol, lauryl alcohol, diacetone alcohol, cyclohexanol, ethylene glycol, diethylene glycol, and triethylene glycol.

5. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein the dispersion stabilizer is a compound having at least one selected from the group consisting of nitrogen, phosphorus, and chalcogen atoms.

6. The dispersion of tin-doped indium oxide fine particles

according to claim 5,

wherein the dispersion stabilizer is at least one selected from the group consisting of sulfate ester-based compound, phosphate ester-based compound, ricinoleic acid, polyricinoleic acid, polycarboxylic acid, polyhydric alcohol type surfactant, polyvinyl alcohol, and polyvinyl butyral.

7. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein the dispersion stabilizer is at least one selected from the group consisting of chelate, inorganic acid, and organic acid.

8. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein the dispersion of tin-doped indium oxide fine particles contains, as the dispersion stabilizer, three components of phosphate ester-based compound, organic acid, and chelate.

9. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein a concentration of the tin-doped indium oxide fine particles is from 0.1 to 95% by weight,

a content of the plasticizer for an interlayer film

is from 1 to 99.9% by weight,

a content of the organic solvent containing alcohols as a main component is from 0.02 to 25% by weight, and

a content of the dispersion stabilizer is from 0.0025 to 30% by weight.

10. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein the dispersion of tin-doped indium oxide fine particles is obtained by diluting a dispersion of tin-doped indium oxide fine particles which contains tin-doped indium oxide fine particles, a plasticizer for an interlayer film, an organic solvent containing alcohols as a main component, and a dispersion stabilizer, and in which a concentration of the tin-doped indium oxide fine particles is from 0.1 to 95% by weight, with a plasticizer for an interlayer film, or a plasticizer for an interlayer film containing an organic solvent containing alcohols as a main component and/or a dispersion stabilizer.

11. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein, when a concentration of the tin-doped indium oxide fine particles is adjusted to 10.0% by weight by diluting a dispersion of tin-doped indium oxide fine particles having the concentration of the tin-doped indium

oxide fine particles of 10.0% by weight or more, or when a concentration of the tin-doped indium oxide fine particles is adjusted to 40.0% by weight by diluting a dispersion of tin-doped indium oxide fine particles having the concentration of the tin-doped indium oxide fine particles of 40.0% by weight or more,

a mean volume particle size of the tin-doped indium oxide fine particles is 80 nm or less, and

a particle size at 90% accumulation (D90) is 160 nm or less.

12. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein a primary average particle size of the tin-doped indium oxide fine particles is 0.2 μm or less.

13. The dispersion of tin-doped indium oxide fine particles according to claim 1,

wherein a lattice constant of a tin-doped indium oxide fine particle crystal is from 10.11 to 10.16 Å.

14. A method for manufacturing the dispersion of tin-doped indium oxide fine particles according to claim 1,

the method comprising mixing an organic solvent containing alcohols as a main component, a dispersion stabilizer, tin-doped indium oxide fine particles, and

plasticizer for an interlayer film, thereby dispersing the tin-doped indium oxide fine particles.

15. The method for manufacturing a dispersion of tin-doped indium oxide fine particles according to claim 14,

wherein a mixed solution containing the organic solvent containing the alcohols as a main component, the dispersion stabilizer, and the tin-doped indium oxide fine particles is prepared, and

this mixed solution is mixed with the plasticizer for an interlayer film to obtain a dispersion of tin-doped indium oxide fine particles.

16. The method for manufacturing a dispersion of tin-doped indium oxide fine particles according to claim 15,

wherein the mixed solution containing the organic solvent containing the alcohols as a main component, the dispersion stabilizer, and the tin-doped indium oxide fine particles is prepared, and

this mixed solution is added to the plasticizer for an interlayer film, or the plasticizer for an interlayer film is added to this mixed solution, thereby dispersing the tin-doped indium oxide fine particles.

17. The method for manufacturing a dispersion of tin-doped indium oxide fine particles according to claim 15,

wherein a plasticizer containing an organic solvent containing alcohols as a main component or a dispersion stabilizer is used as the plasticizer for an interlayer film.

18. An interlayer film for heat shield laminated glass, which is formed by using a resin composition of a mixture of the dispersion of tin-doped indium oxide fine particles of claim 1 and a resin,

wherein, under measuring conditions in which the interlayer film having a thickness of 0.76 mm is interposed between clear glass sheets having a thickness of 2.5 mm,

electromagnetic wave shield properties at a frequency of 0.1 MHz to 26.5 GHz is 10dB or less,

a haze value is 1.0% or less,

a visible light transmittance is 70% or more,

a solar radiation transmittance at a wavelength within a range from 300 to 2100 nm is 80% or less of the visible light transmittance, and

a reflection yellow index is -12 or more.

19. The interlayer film for laminated glass according to claim 18,

wherein instead of the reflection yellow index being -12 or more or with the reflection yellow index being -12 or more,

a reflection value at 0 degrees among reflected light distribution at an incidence angle of 45 degrees measured by a goniophotometric measurement is 25 or less.

20. The interlayer film for laminated glass according to claim 18,

wherein 20 to 60 parts by weight of the plasticizer for an interlayer film and 0.1 to 3 parts by weight of the tin-doped indium oxide fine particles based on 100 parts by weight of a polyvinyl acetal resin are contained.

21. The interlayer film for laminated glass according to claim 20,

wherein the polyvinyl acetal resin is a polyvinyl butyral resin.

22. The interlayer film for laminated glass according to claim 18,

wherein the resin composition obtained by mixing the dispersion of tin-doped indium oxide fine particles with the resin further contains an alkali metal salt and/or an alkali earth metal salt as an adhesion adjustor.

23. The interlayer film for laminated glass according to claim 18,

wherein the tin-doped indium oxide fine particles

have an average particle size of 80 nm or less and are dispersed such that a number of particles having a particle size of 100 nm or more is one per μm^2 or less.

24. A laminated glass comprising the interlayer film for laminated glass of claim 18.

25. The laminated glass according to claim 24,

wherein the laminated glass has heat ray shield properties in which electromagnetic wave shield performance at a frequency of 0.1 MHz to 26.5 GHz is 10 dB or less, a haze value is 1.0% or less, a visible light transmittance is 70% or more, a solar radiation transmittance at a wavelength within a range from 300 to 2100 nm is 80% or less of the visible light transmittance, and a reflection yellow index is -12 or more.

26. The laminated glass according to claim 25,

wherein instead of the reflection yellow index being -12 or more, or with the reflection yellow index being -12 or more,

a reflection value measured at 0 degrees among reflected light distribution at an incidence angle of 45 degrees measured by a goniophotometric measurement is 25 or less.